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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,145	03/19/2004	Kenneth A. Frankel	720010.401	8651
31740	7590	02/04/2008	EXAMINER	
THOMAS LOOP P.O. BOX 21466 SEATTLE, WA 98111			WOLLSCHLAGER, JEFFREY MICHAEL	
			ART UNIT	PAPER NUMBER
			1791	
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			02/04/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/805,145	<b>Applicant(s)</b> FRANKEL, KENNETH A.	
	<b>Examiner</b> JEFFREY WOLLSCHLAGER	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/ are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 3, 2007 has been entered.

### ***Response to Amendment***

Applicant's amendment to the claims filed December 3, 2007 has been entered. Claim 1 is currently amended. Claim 9 has been canceled. Claims 1-8 and 10-13 are pending and under examination.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 5-8 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ashton et al. (US 5,137,071) in view of Nelson et al. (US 6,458,306) and as evidenced by either of Reddy et al. (US 7,007,755) or Ishibashi et al. (US 6,110,406).

Regarding claim 1, Ashton et al. teach a method and apparatus used to form a three-dimensional composite structure, such as reinforced structural sheets as well as reinforced cylinders comprising stiffening inserts (Abstract; col. 1, lines 12-26; col. 2, lines 48-55). The

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apparatus and method comprises employment of a foam mandrel (60) having recesses complementary to the stiffening agent/insert (Figure 3; (76)). An elastic envelope bag (46) is formed about the mandrel with an additional layer of ABS resin (32) and layers of resin and fibers (Figure 3 and 4; col. 5, lines 55-65) are applied about the envelope bag. The stiffening agent, such as an I-beam insert, is placed in the recess (Figure 3; (76)). The part is placed into a clamshell/split mold (14) and the envelope bag is inflated with pressure (Figure 5) to press/force the part against the wall of the clamshell/split mold (14). The material and thereby the mold are heated and the part is cured (col. 7, lines 10-31). Following the curing cycle, the foam is generally discarded and the envelope bag may be reused, suggesting the foam and the envelope bag are removed from the final product (col. 7, lines 31-40).

Ashton et al. do not expressly teach applying a vacuum between the bladder and the mandrel to force and conform the bladder against the mandrel. Furthermore, Ashton et al. do not teach how the foam is removed from the molded part and discarded (e.g. liquefying/dissolving the foam from the part). However, Nelson et al. teach an analogous method of forming hollow composite articles wherein they apply a vacuum in between the bladder and the mandrel to force and conform the bladder against the exterior surface of the mandrel (col. 12, lines 62-65). Furthermore, Nelson et al. teach the mandrel can be made of foam, such as a starch foam, or any readily soluble in water material that presents no extensive waste disposal costs (col. 10, line 47-col. 11, line 46).

Additionally, as evidenced by either of Reddy et al. (col. 2, lines 27-44) or Ishibashi et al. (col. 3, line 55 - col. 4, lines 5), ABS is an elastic material.

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have combined the teaching of Nelson et al. with the teaching of Ashton et al. and to have employed the foam material disclosed by Nelson et al. as

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the foam material in Ashton et al.'s method for the purpose of reducing waste disposal costs and providing a material that dissolves easily to facilitate removal of the foam mandrel from the part, as is routinely practiced in the art. Further, it would have been obvious to have applied a vacuum between the bladder and the mandrel as suggested by Nelson et al. in the method of Ashton et al. for the purpose, as suggested by Nelson et al., of forcing the bladder to conform to the foam mandrel.

As to claim 3, the stiffening members employed by Ashton et al. are, for example, made of rubber (col. 6, lines 3-24).

As to claim 5, Ashton et al. (60) and Nelson et al. (col. 10, line 47-col. 11, line 46) disclose a foam material.

As to claim 6, Ashton et al. employ a silicone rubber as the envelope bag (col. 5, lines 5-14).

As to claims 7 and 8, Ashton et al. disclose epoxy resin and glass and carbon fibers (col. 5, lines 55-65).

As to claim 10, Ashton et al. disclose pressures of about 50 to about 100 psig (col. 6, lines 41-66).

As to claims 11 and 12, Ashton et al. discloses an initial heating to 235 °F and then heating to a second temperature to cure the material for about 1 to 2 hours (col. 7, lines 10-31).

As to claim 13, Ashton et al. further disclose employment of a vacuum between the part and the interior surface of the mold (14) (Figure 5 (90)).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ashton et al. (US 5,137,071) in view of Nelson et al. (US 6,458,306) and as evidenced by either of Reddy et al.

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(US 7,007,755) or Ishibashi et al. (US 6,110,406), as applied to claims 1, 3, 5-8 and 10-13 above, in view of Hladik et al. (US 3,989,562).

As to claim 2, the combination teaches the method set forth above. Ashton et al. do not teach employment of a honeycomb structure as the stiffening insert. However, Hladik et al. suggest reinforcing materials such as beams, ribs and honeycombs are art recognized equivalent reinforcing structures (col. 1, lines 32-47).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have employed an art recognized equivalent alternative reinforcing material such as a honeycomb structure, as suggested by Hladik et al., in the method of Ashton et al. because it has been held that employing art recognized equivalents suitable for the same purpose is *prima facie* obvious (MPEP 2144.06-2144.07).

Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ashton et al. (US 5,137,071) in view of Nelson et al. (US 6,458,306) and as evidenced by either of Reddy et al. (US 7,007,755) or Ishibashi et al. (US 6,110,406), as applied to claims 1, 3, 5-8 and 10-13 above, in view of Ayorinde (U.S. Patent 6,444,071).

As to claims 2 and 4, the combination teaches the method of claim 1. Ashton et al. do not teach employment of a honeycomb or of a wood piece. However, Ayorinde discloses that honeycomb cores, foam, balsa wood and the like are art-recognized equivalents (col. 1, lines 29-35).

As such, it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have employed the art recognized equivalent wood core disclosed by Ayorinde to replace the material inserts employed by Ashton et al. since it has

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been held that choosing between art recognized equivalents for the same purpose is *prima facie* obvious.

### ***Response to Arguments***

Applicant's arguments filed December 3, 2007 have been fully considered, but they are not persuasive. Applicant argues that the ABS layer of Ashton et al. is not an elastic layer and points to portions of Ashton et al. showing that the ABS is "hard". This argument is not persuasive. The examiner does not dispute that the ABS layer may be considered "hard". However, the examiner notes that whether ABS is considered "hard" does not refute the fact that ABS is elastic.

Acrylonitrile-Butadiene-Styrene (ABS) contains butadiene rubber. This rubber portion of ABS provides elasticity to the material. The butadiene component, for example, enables car dashboards that are made of ABS to be able to be compressed without cracking and return to their original dimensions. Additionally, the examiner has provided two evidence references, Reddy et al. and Ishibashi et al., as set forth in the rejection above, demonstrating the fact that ABS is an elastic material. Accordingly, the envelope bag of Ashton et al. in combination with the layer of ABS on the envelope bag is reasonably understood and interpreted to form an elastic bladder wherein the resin and fiber material are applied about and immediately adjacent to the elastic bladder.

Further, in an effort to anticipate potential claim amendments, the examiner notes that the Frikken reference cited in the instant disclosure shows a single layered elastic bladder in combination with a dissolvable mandrel. The Frikken reference also appears to be combinable with Ashton et al. (MPEP 2144.06-2144.07). The examiner notes that while Ashton et al. suggest the addition of the ABS layer provides an improvement to the process, there is no

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suggestion in Ashton et al. that a conventional single layered, silicone rubber envelope bag would not also work and be effective for a variety of applications, including applications not requiring such tight molding tolerances.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFFREY WOLLSCHLAGER whose telephone number is (571)272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. W./  
Examiner, Art Unit 1791

January 30, 2008

  
CHRISTINA JOHNSON  
SUPERVISORY PATENT EXAMINER